Denis L. Volkov, Ph.D.

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EDUCATION

2000 – 2004: **Utrecht University** Utrecht, Netherlands

Ph.D., Physical Oceanography

- **Thesis:** *Monitoring the variability of sea level and surface circulation with satellite altimetry*
- **Advisors:** Prof. W. de Ruijter, Dr. H.M. van Aken.

1997 – 1999: **Saint-Petersburg State University** St.-Petersburg, Russia

M.Sc., Hydrometeorology

- **Major:** Physical Oceanography
- **GPA** 4.9/5.0, *Summa Cum Laude*

1992 – 1997: **Saint-Petersburg State University** St.-Petersburg, Russia

B.Sc., Hydrometeorology

- **Major:** Physical Oceanography
- **GPA** 4.9/5.0, *Summa Cum Laude*

PROFESSIONAL EXPERIENCE

2006 – present: **NASA Jet Propulsion Laboratory, California Institute of Technology** Pasadena, California

Post-Doctoral Researcher. **Advisor:** Dr. L.-L. Fu

- Conducted research on the dynamics in the Argentine Basin, the dynamics of the Azores Current, and the meridional total and eddy heat transports.
- Contributed to the development of a high-resolution ocean data synthesis product as part of the Estimating Climate and Circulation of the Ocean (Phase 2) project by carrying out its diagnostics.

2005 – 2006: **Collecte Localisation Satellite, Space Oceanography Division** Toulouse, France

Marie-Curie Fellow/Scientist. **Advisor:** Dr. P.-Y. Le Traon

- Contributed to the implementation of a correction for the aliased high-frequency barotropic signals in satellite altimetry measurements that significantly increased its accuracy in shallow waters.

- Carried out the validation of the newly corrected satellite altimetry product before its distribution and demonstrated its advantages over a previously distributed product.

2000 – 2004: **Royal Netherlands Institute for Sea Research** Texel, Netherlands

Ph.D. student. **Advisor:** Dr. H.M. van Aken

- Analyzed the variability of sea level and surface circulation using satellite altimetry records and hydrographic measurements.
- Established connection between the large-scale changes of sea level in the North Atlantic and atmospheric dynamics.

1998 – 1999: **Arctic and Antarctic Research Institute** St.-Petersburg, Russia

Technician/Engeneer. **Advisor:** Dr. I. Dmitrenko

- Analyzed hydrometeorological data for the Russian-German project "The Laptev Sea System".
- Carried out archiving of hydrometeorological data.

RESEARCH CRUISES

Sept 2005:	Icebreaker *"Kapitan Dranitsyn"* (Russia), International Arctic Research Center (USA), NABOS-2005 Arctic expedition. Duty: ADCP team, analysis of velocity measurements
Sept – Oct 2000:	R/V *"Pelagia"* (Netherlands), the North Atlantic Ocean (section AR7E). Duty: determination of the concentrations of dissolved oxygen in seawater samples
July – Aug 1998:	R/V *"Polarstern"* (Germany), the Laptev Sea. Duty: *CTD team, analysis of T-S fields*
July – Aug 1997:	R/V "*Dalniye Zelentcy*" (Russia), the Barents Sea. Duty: determination of the concentrations of nutrients
July – Aug 1996:	R/V *"Nikolay Matusevich"* (Russia), the Baltic Sea. Duty: CTD team + determination of nutrients and oxygen, analysis of T-S fields.

PUBLICATIONS

- *Peer-reviewed journal articles*

Volkov D.L., T. Lee, L.L. Fu **(2008)**: Eddy-induced meridional heat transport in the ocean, *Geophys. Res. Lett.*, *35*, LXXXXX, doi:10.1029/2008GL035490.

Volkov D.L., L.L. Fu **(2008):** The role of vorticity fluxes in the dynamics of the Zapiola Anticyclone, *J. Geophys. Res.*, *113*, C11015, doi:10.1029/2008JC004841.

Volkov D.L., G. Larnicol, J. Dorandeu **(2007):** Improving the quality of satellite altimetry data over continental shelves, *J. Geophys. Res*., 112, doi:10.1029/2006JC003765.

Volkov D.L., H.M. van Aken **(2005):** Climate-related change of sea level in the extratropical North Atlantic and North Pacific in 1993-2003, *Geophys. Res. Lett.,* 32, doi:10.1020/2005GL023097.

Volkov D.L. (2005): The inter-annual variability of the altimetry-derived eddy field and associated surface circulation in the North Atlantic Ocean in 1993-2001, *J. Phys. Oceanogr.*, V35, 405-426.

Volkov D.L. (2004): Propagating features in the eddy field of the North Atlantic Current, *Geophys. Res. Lett.*, 31, doi:10.1029/2004GL021401.

Volkov D.L., H.M. van Aken **(2003)**: Annual and inter-annual variability of sea level in the northern North Atlantic Ocean, *J. Geophys. Res.*, 108, C6, 3204.

Dmitrenko I.A., Gribanov V.A., **Volkov D.L.**, Berezovskaya S.L. and Kassens H. **(2000)**: Role of river discharge in the inter-annual variability of the sea land fast ice distribution in the Russian Arctic, *Meteorolgia i Hydrologia*, 2 (in Russian).

- *Other peer-reviewed publications*

Volkov D.L. (2004): Monitoring the sea level and surface circulation with satellite altimetry, Ph.D. thesis, ISBN: 90-393-3862-0, 152 pp..

Volkov D.L., H.M. van Aken **(2004)**: Low frequency change of sea level in the North Atlantic Ocean as observed with satellite altimetry, in Satellite Altimetry for Geodesy, Geophysics and Oceanography Series: International association of geodesy symposia, Vol. 126, Hwang, Cheinway; Shum, C.; Li, Jiancheng (Eds.), 280 p., Springer-Verlag.

Volkov D.L., H. van Aken **(2004)**: Climate-related change of sea level observed with satellite altimetry, NIOZ annual report.

Dmitrenko I.A., Gribanov V.A., **Volkov D.L.**, Kassens H., and Eicken H. **(1999)**: Impact of river discharge on the sea land fast ice extension in the Russian Arctic shelf area, POAC 99, Proceedings, vol. 1, Espoo, Finland.

- *Manuscripts in preparation:*

Volkov D.L., L.L.Fu **(2009)**, On the reasons for the existence and the variability of the Azores Current, *J. Phys. Oceanogr.*, submitted.

Volkov D.L., L.L. Fu, T. Lee **(2008)**, Mechanisms of the meridional heat transport in the Southern Ocean, in preparation.

ABSTRACTS/MEETINGS

Volkov D.L., L.-L. Fu, T. Lee (2008): Meridional heat transports in the ocean from an ECCO2 data synthesis, *AGU Fall Meeting*, San Francisco CA, USA.

Volkov D.L., L.-L. Fu (2008): The role of vorticity fluxes in the dynamics of the Zapiola Anticyclone, *Ocean Sciences Meeting*, Orlando FL, USA.

M. Schodlok, D. Menemenlis, and **D. Volkov** (2008), Assessment of the Southern Ocean solution in the ECCO2 data syntheses, *Ocean Sciences Meeting*, Orlando FL, USA.

H. Zhang, D. Menemenlis, T. Lee, M. Schodlok, **D. Volkov**, and V. Zlotnicki (2008), Assessment of the ECCO2 high resolution global-ocean and sea-ice data synthesis using the CLIVAR/GODAE global synthesis and observations panel metrics, *Ocean Sciences Meeting*, Orlando FL, USA.

Volkov D.L., H.M. van Aken (2004): The variability of sea level in the North Atlantic and North Pacific in 1993-2003 observed with satellite altimetry, *Joint Assembly of AGU, CGU, SEG and EEGS*, Montreal, Canada. The presentation received an **Outstanding Student Paper Award**.

Volkov D.L. (2004): The comparative analysis of the sea level variability in the North Atlantic and North Pacific from 1993 to 2002, *EGU General Assembly*, Nice, France.

Volkov D.L. (2004): Complex singular value decomposition analysis of eddy kinetic energy field in the North Atlantic Current, *EGU General Assembly*, Nice, France.

Volkov D.L. (2003): Eddy field and its interannual variability in the North Atlantic Ocean as observed with satellite altimetry, *EGU-AGU Joint Assembly*, Nice, France.

Volkov D.L., H.M. van Aken (2002): Annual and interannual variability of sea level in the northern North Atlantic Ocean, *EGS meeting*, Nice, France.

SEMINARS/PRESENTATIONS

Max-Planck Institute for Meteorology, Hamburg, Germany *November 2008*

Volkov D.L., L.L.Fu, T.Lee, D.Menemenlis: Meridional heat transports in the ocean from an ECCO2 data synthesis.

Massachusetts Institute of Technology, Cambridge, MA, USA *September 2008*

Volkov D.L., T. Lee, L.L. Fu: ECCO2 meridional heat transports in the ocean.

Jet Propulsion Laboratory, Pasadena, CA, USA *August 2008*

Volkov D.L., L.-L. Fu: Oceanic heat transport and recent sea level rise in the Subpolar North Atlantic Ocean.

Leibniz Institute for Sea Research, IFM-GEOMAR, Kiel, Germany *June 2008*

Volkov D.L., L.-L. Fu: On the dynamics in the Argentine Basin: the Zapiola Anticyclone.

Jet Propulsion Laboratory, Pasadena, CA, USA *January 2006*

Volkov D.L. et al.: Improving the quality of satellite altimetry data by reducing the impact of long wavelength errors.

Royal Netherlands Institute for Sea Research, Texel, Netherlands *September 2003*

Volkov D.L., H.M. van Aken: The variability of sea level and surface circulation in the North Atlantic observed with satellite altimetry.

International workshop on satellite altimetry for geodesy, geophysics and oceanography, Wuhan, China *September 2002*

Volkov D.L., H.M. van Aken: Low-frequency change of sea level in the North Atlantic Ocean as observed by satellite altimetry.

Buys Ballot research school symposium, Netherlands *November 2001*

Volkov D.L., H.M. van Aken: Annual and interannual variability of sea level in the northern North Atlantic Ocean.

Arctic and Antarctic Research Institute, Saint-Petersburg, Russia *November 1999*

Dmitrenko I.A., V.A. Gribanov, **D.L. Volkov**, S.L. Berezovskaya, H. Kassens: The role of hydrometeorological factors in the interannual variations of the fast ice extent in the Laptev Sea.

ADDITIONAL INFORMATION

Membership: American Geophysical Union (2008 – present), the European Geophysical Union (2002 – 2004)

Reviewer: Geophysical Research Letters, Journal of Geophysical Research

Teaching: "Physical Oceanography of the Arctic Ocean" to undergraduate students, Saint-Petersburg State University, 30 hours (1999)

Languages: Russian (native), English (fluent), French (intermediate)